

Remarks

Claims 1, and 3-9 remain pending after entry of this amendment. Applicant notes that the Examiner noted that claims 1-9 are pending, when claim 2 was cancelled in the June 11, 2003 amendment. Favorable reconsideration is respectfully requested in light of the remarks submitted herein.

The Examiner objected to the abstract as containing language such as "comprising" and "An insulating composition... is disclosed." Applicant respectfully traverses this rejection.

Claims 1-2, 5, and 7-9 are rejected under 35 U.S.C. § 103 as being unpatentable over Gross et al. (WO 97/50093). Applicant respectfully traverses this rejection.

Claims 3-4 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gross et al. (WO 97/50093) in view of Martensson et al. (WO 99/35652). Applicant respectfully traverses this rejection.

Objections to the abstract

The Examiner objected to the abstract as containing language such as "comprising" and "An insulating composition... is disclosed."

The abstract has been amended to remove such words and phrases. Applicant respectfully submits that the amendments do not add new matter. Applicant respectfully requests that this objection be withdrawn in light of the amendments made above.

Rejections under 35 U.S.C. § 103

Claims 1-2, 5, and 7-9 are rejected under 35 U.S.C. § 103 as being unpatentable over Gross et al. (WO 97/50093). Applicant respectfully asserts that the Examiner has failed to establish a *prima facie* case of obviousness. In order to establish *prima facie* obviousness, three basic criteria must be met, namely: (1) there must be some suggestion or motivation to combine the references or modify the reference teaching; (2) there must be a reasonable expectation of success; and (3) the reference or references when combined must teach or suggest each claim limitation. Applicant submits that the Office Action failed to state a *prima facie* case of obviousness, and therefore the burden has not properly shifted to Applicant to present evidence of nonobviousness.

Applicant asserts that the Examiner has not established a *prima facie* case of obviousness because Gross does not teach or suggest each claim limitation.

The multimodal ethylene copolymer of the invention has a MWD (molecular weight distribution) of 3.5-8. A MWD of from 3.5-8 is considered a narrow MWD, especially for a multimodal polymer. Gross discloses, on page 2, lines 28-30, that "the polyethylenes of interest here are copolymers of ethylene and one or more alpha-olefins, **which have a broad molecular weight distribution...**" (emphasis added). Therefore, Gross does not disclose a multimodal ethylene copolymer having a MWD of 3.5-8. Gross also does not suggest such a value for a MWD, and in effect teaches away from such a range because a range of 3.5-8 is narrow and Gross teaches a broad range. Gross also does not offer any teaching or suggestion that a specific MWD of from 3.5-8 would be of any benefit. Therefore, Gross does not teach or suggest a multimodal ethylene copolymer having a MWD of 3.5-8, and therefore the Examiner has not established a *prima facie* case of obviousness.

The multimodal ethylene copolymer of the invention also has a melting temperature of at most 125° C. Gross does not specifically indicate the melting temperature of the ethylene copolymer but does state on page 8, lines 4-5 that the "extruder is run at 60 revolutions per minute (rpm) at a 155° C melt temperature." (emphasis added). Therefore, presumably the ethylene copolymers of Gross have melting temperatures of at least 155° C.

The higher melting temperature of the multimodal ethylene polymer of Gross is also indicated by the higher TREF value of the polymers of Gross. A broad comonomer distribution (indicated by Gross as a characteristic of the ethylene copolymers utilized therein, page 2, lines 28-30) and a high TREF value implies that the melting temperature of the polymer is high. This is because a high TREF value means that a larger part of the polymer is crystalline and this fraction will require a higher temperature to be completely melted when compared to a polymer with a more homogeneous comonomer distribution (i.e., fewer crystalline fractions) at the same molar comonomer content. A polymer with a broad comonomer distribution, (as those of Gross have - page 2, lines 28-30), will therefore have a higher melting temperature when compared to a polymer with a more homogeneous distribution, such as those of Applicant's invention.

Based on the above comments, Gross does not teach or suggest a multimodal ethylene copolymer that has a melting temperature of at most 125° C, and therefore, the Examiner has not established a *prima facie* case of obviousness.

The multimodal ethylene polymer of the invention also has a high molecular weight ethylene copolymer fraction that has a density of 0.870-0.940 g/cm³ and a MFR₂ of 0.01-3 g/10 min. Gross does not disclose or suggest such a fraction. The only instance in which Gross specifies details of the copolymer fractions of the multimodal polymer is for Copolymer B. However, Copolymer B is a mechanical blend of two copolymers and not an *in situ* blend obtained by sequential polymerization according to Applicant's invention. In addition, the high molecular weight component of Copolymer B has a flow index of 4.5 g/10 min. This flow index is determined at a load of 21.6 kg (page 8, lines 31-33). A load of 21.6 kg is 10 times higher than for the MFR₂ of the high molecular weight component of Applicant's invention. The flow index of 4.5 g/10 min for the high molecular weight component of Gross is therefore not directly comparable to the MFR₂ range of 0.01- 3 g/10 min for the high molecular weight component of Applicant's invention.

Gross does not teach or suggest a multimodal ethylene polymer that has a high molecular weight ethylene copolymer fraction with a density of 0.870-0.940 g/cm³ and a MFR₂ of 0.01-3 g/10 min, and therefore, the Examiner has not established a *prima facie* case of obviousness.

The Examiner has also failed to establish a *prima facie* case of obviousness because there is no suggestion or motivation to modify the teaching of Gross to obtain Applicant's invention. Particularly, there would be no motivation for one of skill in the art to change the TREF value of Gross so that the fraction of copolymer eluted at a temperature higher than 90°C does not exceed 5% by weight (Applicant notes that the Examiner stated "is greater than 5% by weight - Applicant assumes that this was a typographical error) because the purpose of Gross is different.

The object of the composition of Gross is to provide an insulated cable that exhibits a much improved resistance to water trees, i.e., a low WTGR value (see page 2, lines 8-9). The higher the TREF value, the lower the WTGR value becomes (see page 7, lines 27-28). Thus, in order to obtain a low WTGR value, Gross utilizes compositions

with high TREF values. Gross states that the TREF value of their composition is greater than 5%, preferably greater than about 10% (see page 3, lines 17-21). Lowering the TREF value in Gross would result in a composition with a reduced resistance to water trees, i.e., would reduce the WTGR. Therefore, modifying Gross to obtain Applicant's invention would render the invention of Gross unusable for its purpose. According to MPEP § 2143.01, "[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." Therefore there is no motivation to modify Gross.

Even if the modification would not render the prior art invention unusable for its purpose, the stated purpose and the relationship to the characteristics of the polymer composition certainly teach away from Applicant's invention. Either way, there is no suggestion or motivation to modify Gross to obtain Applicant's invention.

Because the Examiner has failed to establish a *prima facie* case of obviousness, at least because 1) the reference does not disclose or suggest all of the limitations; and 2) there is no motivation or suggestion to modify the teaching of the reference, Applicant respectfully requests that this rejection be withdrawn.

Claims 3-4 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gross et al. (WO 97/50093) in view of Martensson et al. (U.S. Pat. No. 6,369,129). Applicant reiterates the discussion regarding Gross above and further states that Martensson et al. (U.S. Pat. No. 6,369,129) is not prior art against the pending application.

Under 35 U.S.C. § 103(c), subject matter developed by another person, which qualifies as prior art only under one or more of § 102 (e), (f), and (g) of section 102... shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person. Applicant respectfully asserts that Martensson et al. was developed by another person, and was owned by Borealis Technology Oy, the same entity that owns the claimed invention, at the time the claimed invention was developed. In support of this, Applicants provide herewith a copy of the recorded assignment of Martensson et al (U.S. Patent No. 6,369,129). Applicants therefore respectfully assert that Martensson et

al. cannot be used as prior art against this application.

As discussed above, Gross does not render the claimed invention obvious by itself. Based on the comments made above, Applicant respectfully asserts that the claims are not obvious over Gross et al., and cannot be rejected over Gross et al. in view of Martensson, and therefore requests that this rejection be withdrawn.

CONCLUSION

In view of the remarks presented herein, it is respectfully submitted that the claims are in condition for allowance and notification to that effect is earnestly solicited.

Respectfully submitted,

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Date: 11/19/03

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